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ABSTRACT

This paper describes practical issues involved in using LISTSERVs as a means of enhancing graduate-student education. During the spring semester of 1995, two classes in the Educational Administration and Educational Technology Departments of the College of Education, Kansas State University, utilized LISTSERVs as a means to continue class discussions. One class, the "proficient" class, was composed primarily of doctoral students majoring in educational technology. The other class, the "novice" class, was a staff-development class comprised largely of practicing school administrators. The novice class was hampered by their unfamiliarity with computers and access problems. The more proficient class communicated more frequently, at greater length, and with greater ease than did the novice class, using LISTSERV to continue discussion about issues brought up in class. Recommendations for effectively using LISTSERVs in collegiate instruction include: (1) address technical factors to ensure easy connection; (2) either require computer experience as a prerequisite or integrate training into the course content--do not address technical issues in an ad hoc fashion; (3) make arrangements for setting up student accounts and LISTSERV with the university well in advance of the course; and (4) carefully frame discussions on the LISTSERV within clear expectations. Appendices contain demographic data on students in the two classes. (Contains 8 references.) (LMI)

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LISTSERVs as a Method to Enhance Instruction: Our First Year Experience

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ABSTRACT

During the spring semester, 1995, the Educational Administration and Educational Technology Departments of the College of Education, Kansas State University initiated investigations into the practical issues of LISTSERVs as a means of enhancing graduate student education. Two classes were selected for this effort. The first was a class composed mostly of doctoral students majoring in educational technology. The second was a staff development class composed largely of practicing school administrators who were returning to the campus to complete advanced degrees. This effort provided valuable data to guide further efforts in using LISTSERV as a viable part of collegiate instruction.

Background

A number of authors have acknowledged the power of modern technologies to bridge barriers of time and space in collegiate instruction (Van Berkum & Stammen, 1992; Clark, 1989; Hiltz & Meinke, 1989). New communication technologies have the potential to alter fundamental methods of lecture and recitation that have been a staple of college classes since the Middle Ages. Students using networked computers have access to vast resources for research and collaborative learning. The capabilities provided by these networked connections open opportunities for enhancing instruction. At the same time many users have complained that electronic communication is complex and it is difficult to use many of the arcane commands associated with this technology (Wilson, 1992). Between opportunities and effective practice many barriers exist. These barriers, sometimes formidable, sometimes unknown, present obstacles to using LISTSERVs to enhance instruction.

Wagner listed three phases distance education projects go through to become institutionalized: 1) technological reliability, 2) institutional support, and 3) organizational design and development (1993). The project outlined in this report was designed to investigate these factors in using LISTSERVs in graduate instruction.

LISTSERVs as an extension of electronic mail provides a way for members of the class and the instructor to send text to all members of the class. A message sent to a LISTSERV is sent to a group rather than an

individual. This opens the class to on going discussions similar to generalized reaction questions used during recitation. Instructors can post a discussion question to the LISTSERV and all student can react to the question and to each other's responses.

LISTSERVs, which originated with an electronic mail service called BITNET, uses a software program to maintain electronic mailing lists. A user can add their electronic mail address to the list to receive messages that have been sent to the LISTSERV (Comer, 1995). In this manner messages or responses sent to the LISTSERV are sent to all members who have subscribed to the service.

Question

The original charge of this investigation was to answer two specific questions concerning using LISTSERVs as a substantial part of graduate instruction in the College of Education.

> What barriers--political, technological and practical--impede the implementation of LISTSERVs as a vehicle for instruction?
>
> What possible benefits may accrue because of using LISTSERVs as part of instruction that make overcoming the various barriers worth the additional effort?

Some subjective assumptions can be made concerning the quality of student learning using this medium. However, the main purpose was not to assess the effectiveness of LISTSERVs as compared to other means of instruction. That will come later. The purpose in this examination was to

determine means which would allow LISTSERVs to be an effective communication technology to enhance education, not another technological barrier for students to hurdle.

Methodology

Two classes were selected for the pilot examination in the use of LISTSERVs as a means of enhancing instruction. The classes were "nonequivalent." These classes were chosen to test this technology because of the willingness of the instructors to participate in the project and the diversity of the students.

One class was composed of students with high levels of technology expertise, familiarity with electronic mail and immediate access to university networking resources. This class will be referred to as the PROFICIENT class. (See Appendix A for demographics of this class.)

The other class was composed of students with a wide range of technology skills, no regular familiarity with electronic mail and little association with the university computing network. The members of this class were, for the most part, practicing principals and will be referred to as the NOVICE class. (See Appendix B for demographics of this class.)

With the cooperation of University Networking Services a LISTSERV was established for each class. Each student established a university network account as a part of class requirements. Instruction on how to access the university network, send and receive mail to the LISTSERV was provided at the start of the semester. Students having difficulty connecting to the

University via dial up MODEMS were provided with technical support at their home work site. These students were largely from the NOVICE class.

Data for this project was collected by a variety of means. Students completed general demographic survey at the beginning of the discussions. During the term of the course texts of the discussion were collected (verbatim) along with name, date and time. The instructors recorded field notes on class interaction, instruction and visits to modem sites.

The plan was to use LISTSERVs as a continuation of class discussion. It was anticipated these activities would take place in the following steps:

1. The professor would pose a question. Each member of the class, by reading their electronic mail, would find the question.
2. Class members would respond to the professor's question. All members of the class would view these responses.
3. Other class members would respond from either their information or perspective to either the professor's question or other class members' responses.

Observations: Barriers

Members of the NOVICE class experienced considerable technical difficulty using LISTSERV as a means of communication. Often they were unfamiliar with computers or they did not have modems or computers in their offices--although these existed in their schools. Computers and or modems that had been placed in their offices were established for particular purposes; i.e. communication with the Board Office or State Department agencies. They did not know how to re-purpose this equipment to communicate with the university for class communication. In house,

technology support was lacking and procedures for sending mail to the LISTSERV via modem were confusing and difficult to implement without such support.

Members of the NOVICE class used dial-up access to the university network. This presented an additional layer of complexity and technological difficulty not experienced by members of the PROFICIENT class. PROFICIENT class members had direct connections to the university. Members of the NOVICE class had to set up communication software and hardware. This involved a complex series of steps to establish baud rates, handshake protocol and stop bits, with a variety of hardware combinations. School administrators had little experience and less inclination to learn these complexities. One example outlined the difficulties administrators had with this technology.

> During regular summer maintenance, the custodial staff had disconnected the wiring to the modem and new communication software had been installed on the equipment. An appointment was set up with the class member--who was also the building principal--to demonstrate the use of the LISTSERV. During the two hours it took to solve the technical problems, the principal became bored with the process and was involved in pressing administrative affairs by the time the equipment was working. [Field Note, Feb. 15, 1995]

Long distance telephone bills did not seem to be a concern to members of the NOVICE class who, for the most part had to use phone lines for connection. However, in November before the class started, A.T. & T.

required 3-digit area codes to be used for calls within areas. Several modems that had university numbers installed no longer worked because of the change in the phone system.

Establishing accounts with the university was an unexpected complexity. Nearly three weeks passed after the start of the class before the NOVICE class' LISTSERV was fully implemented. This delay prevented early adoption and comfort with the technology. Early instruction and success using the LISTSERV for classroom communication seems to be necessary.

The PROFICIENT class experienced few barriers in the use of the communication. Each member had a network account established with university networking services prior to class startup. These accounts had been a regular part of their communications strategies. The LISTSERV which was used for their part of this examination had been established for a previous class.

Observations: Benefits

Several members of the PROFICIENT class took great advantage of the medium to communicate. There messages were frequent and lengthy. Also, they communicated more frequently and with greater ease than members of the NOVICE class.

During the 15-weeks course the members of the PROFICIENT class sent 110 messages containing a total of 48,260 words for an average of 4,387 words

per students. This is in marked comparison to the messages sent by the NOVICE class [See page 11] Admittedly, some of the more lengthy messages were compositions crafted by others not involved with the class and forwarded for information purposes to the class as a whole. However, this was indicative of the PROFICIENT class' familiarity with the technology since none of the NOVICE members took advantage of this ability of a LISTSERV.

Still, some would be described as "Lurkers." They preferred to watch the discussion rather than participate. Their commentaries were scattered and terse. It was evident they were involved in the discussion, but as often happens in traditional classes they chose to avoid expressing an opinion. Because questions were not specifically directed--as they often are in the classroom--answers were not required.

The PROFICIENT class found the LISTSERV as a means of continuing discussion about issues brought up during class. Students, who for a variety of reasons, avoided classroom discussion often took the lead in LISTSERV discussions. Memos filed by these students on the LISTSERV often sparked lively follow up replies from other members of the class. Some memos would create 8-12 replies from other members of the class. A "thread" of the argument often transpired for several days after a class session and periodically drew in sources who were not enrolled in the class. Discussion, would ramble and become unstructured; eventually fizzling out without conclusion.

Conversely, the NOVICE class found communication via LISTSERV

awkward. Their memos were stilted and often appeared to be completing an assignment more than joining a discussion. There discussions were full of comments, "Glad this is finally working!" "HI. Class is starting so I am going to run." "Hello class!" They seldom developed the same comfortable familiarity with the technology the PROFICIENT class exhibited.

This contrasts with the following 'typical' message sent by a member of the PROFICIENT class.

> It is indeed sad to hear stories like that and we all know that they are by the thousands. My personal opinion is that the system that governs our society has made it this way. Professionals no longer look at their profession as part of their humanness, but only as a mean to make money. They void it of all ethics and values, all responsibilities and concern, and deal professionally just on the basis of personal interest. The feelings and thoughts that such system can create can easily be summarized as such: "No one cares about me or my family, why should I care about others?" "It is the survival of the fittest, then I behave accordingly". "Children take too much of my time, money, efforts, etc., why should I have them, or if I do, then I should find a way to raise them without much effort, money, etc." And on and on. It is the individualistic pattern expressed everywhere that turn people off from being humanly responsible individuals in the society. The rich gets richer, the poor gets poorer. Why should the poor school teacher devote heart and sweat in his/her profession to raise a good generation of kids, when the system gives no reward or no hope for one. When the society pays no respect to him/her. When no hand is extended for help. Etc. Etc. This is not meant to justify the teachers attitude. Not at all. I see it just as a facet of life that must be totally reviewed, corrected, and eventually radically changed. If we want a teacher to take care of the education of the child, then we must provide for that teacher the necessary means that would make his/her life enjoyable, challenging in the positive way, and full of moral and spiritual rewards recognized by the society.

Sorry for being too long."

NOVICE class members made little use of the technology. During the same time the PROFICIENT class was sending nearly 50,000 words they sent messages totaling only 1,416 words for an average of 177 words per student and 94.4 words per message.

Moreover, members of the NOVICE class never grasped the ability of electronic mail to communicate with one another. They relied on methods which were familiar and comfortable for them to use and methods they had employed in their professional careers. One member of the class needed to communicate with another about an assignment requiring their collaboration. Rather than posting a message via electronic mail or to the LISTSERV, this principal sent a FAX.

Conclusions

The conclusions from this study must be considered tentative and proposals for a more detailed investigation.

1. For LISTSERVs to be effectively used in graduate, collegiate instruction a number of technical factors must be addressed to insure easy, confident connectivity.

2. Novice users need a high level of skill development with the technology before undertaking such an enterprise in the classroom. This can be either a prerequisite for the class or training in electronic mail becomes

part of the course content. It is not sufficient to have the technical issues addressed in an *ad hoc* fashion.

3. Arrangements for setting up student accounts and LISTSERVs with the university must be made well in advance. Early successful use of the LISTSERV is important if it is to be effectively implemented with novice users. Delay in a typical fifteen week semester means students may not become comfortable enough with the technology for it to become a integral part of class communication.

4. To insure discussion stays on track, activities on the LISTSERV need to be carefully framed with clear expectations. Conversely, if the goal is a wide-ranged, open ended discussion the questions do not need to be closely framed. In either case, students should be informed early on about the expectations of their participation on the LISTSERV.

In short, this brief look at one small part of the larger Internet--LISTSERV--served to emphasis Black, Klingstein and Songer (1995)

> "Mastering the tools is challenging, applying them is even more challenging. Mastering the tools of the Internet requires access, time, training, patience and tenacity. Applying these tools and resources takes all of that plus more time, creativity, endurance, proclivity towards change, a willingness to take risks, plus collegial and administrative support."

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APPENDIX A

NOVICE CLASS DEMOGRAPHICS

Number of Class Members	8
Average Age of Class Member	44
Average Hours Per Week of Computer Use	11.62
Gender	4 Males-4 Females
Native Language	English (All)
Highest Academic Degree Held	7 MA/MS 1 PhD/EdD
Identified Career Experiences:	2 Teachers 3 Administrators 3 Not applicable.

APPENDIX B

SKILLED CLASS DEMOGRAPHICS

Number of Class Members	11
Average Age of Class Member	38.82
Average Hours Per Week of Computer Use	23.86
Gender	6 Females-5 Males-
Native Language	English (8) Other (3)
Highest Academic Degree Held	4 BS/BA 7 MS/MA
Identified Career Experiences[1] :	7 Teachers 7 Other non educational

[1] Some wrote multiple responses.